III.   REMARKS

Claims 1-22 are pending in this application. By this Amendment, claims 5, 19, and 22 have been amended. These amendments are being made to facilitate early allowance of the presently claimed subject matter. Applicants do not acquiesce in the correctness of the objections and rejections and reserve the right to present specific arguments regarding any rejected claims not specifically addressed. Further, Applicants reserve the right to pursue the full scope of the subject matter of the original claims in a subsequent patent application that claims priority to the instant application. Reconsideration in view of the above amendments and following remarks is respectfully requested.

Rejections under 35 U.S.C. § 112

In the Office Action, claims 5, 12, and 19 are rejected under 35 U.S.C. § 112 as lacking proper antecedent basis for recite the limitation "the CQE" in line 1. Applicants have amended each of these claims herein to recite "<u>a completion queue element (CQE)</u>," thereby providing proper antecedent basis and improving clarity. Support for these amendments may be found in the specification in at least paragraph [0022], line 5. Withdrawal of the rejections under § 112 are therefore respectfully requested.

Rejections under 35 U.S.C. § 103(a)

In the Office Action, claims 1-22 are rejected under § 103(a) as being allegedly unpatentable over Elzur (US Publ. No. 2004/0034725, hereinafter, "Elzur") in view of Shah et al. (US Pat. 6,460,080, hereinafter, "Shah"). Applicants respectfully submit that Elzur and Shah do not teach or suggest each and every feature of the claimed invention, and accordingly traverse the rejections for the reasons that follow.

With regard to independent claim 1, Applicants respectfully submit that the combination of Elzur and Shah does not teach or suggest a method for delivering a plurality of RDMA messages including, *inter alia*, "placing each out-of-order RDMA message to a reassembly buffer, wherein each in-order RDMA message *bypasses the reassembly buffer* and is sent to an *internal data buffer* for direct placement to a *destination buffer*" (claim 1, lines 3-5 (emphasis added)). In the Office Action, the Office posits that Elzur teaches this feature at paragraphs [0006] and [0009]. (Office Action, p. 3.)

Applicants respectfully submit that the cited paragraphs, as well as the balance of the Elzur reference, neither teach nor suggest the claimed method including the "placing" feature described above. At paragraph [0006], Elzur describes general issues in networking applications that may be addressed by RDMA technology over TCP addresses, such as bandwidth and processing power. Elzur teaches that protocol processing overhead may be moved to the Ethernet adapter, for example, to an RDMA Network Interface Card (RNIC). Elzur further describes direct data placement (DDP), a property of RDMA, which allows incoming network packets to be placed directly into a final destination memory address, thus eliminating the need for intermediate memory copies and other related memory and processor resource demands, thus reducing data copy operations and latency. Elzur also suggests that it may remove the need for data buffering on the RNIC. ([0006].)

Elzur further teaches that RDMA over TCP further provides flexibility to place information in the designated memory location even when the TCP segment carrying that information arrives out of order, creating a "TCP hole." When such a TCP hole is created, it may be addressed by "support for a 'one-shot' resource usage when DDP service is requested for out-of-order frames," which complicates the control mechanism of the "one-shot," and is therefore

undesirable. ([0009].) One-shot, or one-access implementation, and a variation allowing for multiple-times access (N-shot implementation) are discussed further in paragraphs [0039]-[0042], and allow for auto-unbinding of the RNIC from the resource "if no holes exist in the received TCP sequence up to the location of the segment containing the L-bit" ([0042]). Alternatively, the RNIC may "buffer[out-of-order data] till the TCP hole is plugged" ([0009]), "and then make placement decisions" ([0049]).

Such buffering "until the TCP hole is plugged," however, fails to teach or suggest the features of "a reassembly buffer" for placing/storing out-of-order RDMA messages, "an internal data buffer" for storing in-order RDMA messages which bypass the reassembly buffer, and "a destination buffer," to which in-order messages are sent from the internal data buffer. Elzur's disclosure of "buffering till the TCP hole is plugged" ([0009]) contemplates sending RDMA messages to the same location prior to buffering, regardless of whether they are in- or out-of-order, and merely buffering those which are out-of-order (i.e., include a TCP hole) until the hole is plugged. There is no disclosure of differentiating between an in-order and an out-of-order message to determine *which buffer* to send the message to. Elzur fails to disclose that *in-order* RDMA messages are sent to an internal data buffer that is for direct placement to a destination buffer. Still further, Applicants maintain that Elzur fails to disclose the reassembly buffer as it is claimed in claim 1 "such that the out-of-order RDMA messages are reassembled in-order in the reassembly buffer" (claim 1, lines 12-13).

The Office further posits that Elzur teaches "storing information regarding each out-of-order RDMA message ... *in a connection context* on a per TCP hole basis" (claim 1 (emphasis added)) at paragraph [0009], lines 1-9. Applicants respectfully submit, however, that Elzur fails

to teach or suggest such a connection context. Further, the Office fails to point out which feature in the cited passage allegedly teaches or suggests the claimed feature.

In light of these arguments, Applicants submit that Elzur, independently or in combination with Shah, does not teach or suggest each and every element of claim 1.

With respect to independent claims 9 and 16, Applicants note that each of these claims includes features similar in scope to those already addressed above with respect to claim 1. Further, the Office relies on the same arguments and interpretations of Elzur and Shah as discussed above with respect to claim 1, and in fact addresses these claims simultaneously with claim 1 (Office Action, p. 3). To this extent, Applicants herein incorporate the arguments presented above with respect to claims 9 and 16, and respectfully request withdrawal of the rejections of these claims for the above-stated reasons.

With regard to dependent claims 2-8, 10-15, and 17-22, Applicants respectfully submit that these claims are allowable for reasons stated above relative to independent claims 1, 9, and 16, as well as for their own additional claimed subject matter. Accordingly, Applicants respectfully request that the Office withdraw the rejections under 35 U.S.C. § 103(a) to claims 2-8, 10-15, and 17-22.

IV. CONCLUSION

In view of the foregoing arguments, Applicants respectfully submit that the application is in condition for allowance. Should the Examiner believe that anything further is necessary to place the application in better condition for allowance, he is requested to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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